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Indian Standard
SPECIFICATION FOR ENGINEERS' DRAWING INSTRUMENTS, DOUBLE LINE PENS

UDC 744·343·25

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

March 1978

AMENDMENT NO. 1 MARCH 1984

TO

IS:8630-1977 SPECIFICATION FOR ENGINEERS' DRAWING INSTRUMENT, DOUBLE LINE PENS

Alteration

(*Page 5, clause 6.2*) - Delete and renumber the subsequent clauses accordingly.

(EDC 36)

Reprogrpahy Unit, ISI, New Delhi, India

Indian Standard
SPECIFICATION FOR ENGINEERS' DRAWING INSTRUMENTS, DOUBLE LINE PENS

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Indian Standard
SPECIFICATION FOR ENGINEERS' DRAWING INSTRUMENTS, DOUBLE LINE PENS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 29 November 1977, after the draft finalized by the Optical and Mathematical Instruments Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 Double line pen is a drawing instrument used for drawing parallel lines of uniform thickness in ink. It consists of a pair of plain nibs fitted to a handle. Each of the nibs can be adjusted by means of an adjusting screw. The distance between the nib is maintained by an adjusting screw.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements of double line pen for use in drawing offices.

2. NOMENCLATURE

2.1 The nomenclature of different parts of the double line pen is shown in Fig. 1.

3. MATERIAL

3.1 The material for the manufacture of the drawing nibs shall be steel having a carbon content of 0·60 to 0·75 percent or stainless steel.

3.2 The handle shall be made of suitable lightweight material, like unbreakable plastic, aluminium, seasoned and defect-free teakwood, Ivorine, etc.

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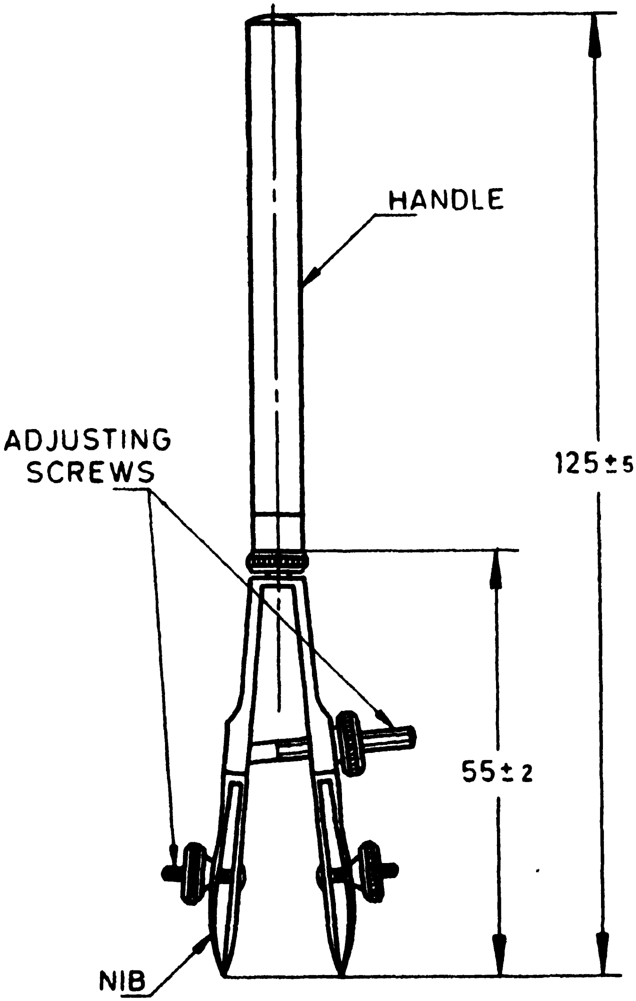
*Rules for rounding off numerical values (*revised*).



All dimensions in millimetres.

Fig. 1 Nomenclature and Dimensions for Pen, Double Line

4. DIMENSIONS

4.1 The dimensions of double line pen shall be as shown in Fig. 1. The design details shall be at the discretion of the manufacturer as long as the requirements stipulated in this standard are complied with.

5. GENERAL REQUIREMENTS

5.1 The drawing nibs shall have a well designed ink space and the points of the nibs shall be rounded in an elliptical form for smooth working.

5.2 The nib shall be so constructed that it forms a spring in itself and remains tightly pressed against the adjusting screw throughout the range of its setting.

5.3 The nibs shall be of plain design.

5.4 The drawing nibs shall have a minimum hardness of 230 *HV*.

5.5 The movement and range of the screws shall be satisfactory.

5.6 The pen points shall meet exactly when fully screwed. The pen shall draw parallel lines of uniform thickness without scratching the paper.

5.7 The pen shall be adjustable to enable drawing of parallel lines up to 20 mm apart.

6. WORKMANSHIP AND FINISH

6.1 All unwanted sharp corners and edges shall be removed.

6.2 All engravings shall be correctly filled in with thoroughly adherent filling material.

6.3 The drawing nibs shall be hardened, tempered, polished and honed.

6.4 The handle shall be smooth and well finished.

6.5 When the drawing nibs are made from carbon steel, it shall be chromium plated according to Grade 'B' of IS : 1068-1968*.

6.6 The screws provided in the pen shall conform to the requirements specified in IS : 3222 (Part I)-1966†.

7. TESTS

7.1 The pen shall be tested to ensure that it draws neat and smooth parallel lines of uniform thickness.

7.2 The two nibs shall have independent provision for adjusting the line thickness within the range 0·20 mm to 1·30 mm.

7.3 The pen shall be tested to ensure that it can draw parallel lines up to 20 mm apart.

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*Specification for electroplated coatings of nickel and chromium on iron and steel (*first revision*).

†Specification for instrument screws : Part I Fasteners for drawing instruments.

8. MARKING

8.1 Each double line pen shall be legibly and indelibly marked with the name, initials or trade-mark of the manufacturer at a convenient place.

8.1.1 Each pen may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for comformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

9. PACKING

9.1 Double line pens when supplied separately shall be wrapped in a tissue paper which shall be retained in position with cellophane tape. The package shall be placed in a suitable carton. The manufacturer's initials or trade-mark shall be printed on the cartons.

(*Continued from page* 2)

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INDIAN STANDARDS ON DRAWING INSTRUMENTS

IS:	
1360-1963	Engineers' pattern tee squares (*revised*)
1444-1963	Engineers' pattern drawing boards (*revised*)
1480-1970	Metric scales for general purposes (*first revision*)
1481-1970	Metric steel scales for engineers (*first revision*)
1482-1970	Metric scales for use with drafting machines (*first revision*)
1491-1959	Metric scales for architectural purposes
1561-1962	Set squares for use of drawing offices
1562-1962	Metric diagonal scales (cartographers, surveyors and engineers')
1563-1962	Protractors for use of drawing offices
2233-1962	Straightedges for drawing office use
2286-1963	Pantograph
2287-1970	Drafting machines (*first revision*)
2466-1963	Beam compasses
2533-1963	Geometry boxes
2666-1963	Slide rules (linear type)
3206-1965	Engineers' drawing instruments, dividers
3207-1965	Engineers' drawing instruments, rotating compasses
3208-1965	Engineers' drawing instruments, half set of compasses
3209-1965	Engineers' drawing instruments, spring bow compasses
3210-1965	Engineers' drawing instruments, drawing pens
3211-1965	Engineers' drawing instruments, pen points
3212-1965	Engineers' drawing instruments, lengthening bars
3213-1965	Engineers' drawing instruments, handles
3214-1965	Engineers' drawing instruments, pencil points
3215-1965	Engineers' drawing instruments, needle points
3216-1965	Engineers' drawing instruments, needles
3217-1965	Engineers' drawing instruments, prickers
3218-1968	Parallel rulers, 150 mm (link type)
3219-1966	Engineers' drawing instruments, boxes for leads and needles
3220-1966	Engineers' drawing instruments, screw drivers
3221-1966	Sets for drawing instruments
3222 (Part I)-1966	Instrument screws : Part I Fasteners for drawing instruments
5153-1969	Proportional compasses 150 mm, 200 mm and 300 mm
5205-1969	Drawing pins
5213-1969	French curves for drawing office use
5694-1970	Engineers' drawing instruments, dotting pens
5726-1970	Engineers' drawing instruments, bordering pens
5737-1970	Engineers' drawing instruments, curve pens
7543-1975	Planimeters
7544-1975	Parallel ruler (roller type)
8630-1977	Engineers' drawing instruments, double line pens

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Conversion*
Force	newton	N	$1\ \mathrm{N} = 1\ \mathrm{kg}.1\ \mathrm{m/s^2}$
Energy	joule	J	$1\ \mathrm{J} = 1\ \mathrm{N.m}$
Power	watt	W	$1\ \mathrm{W} = 1\ \mathrm{J/s}$
Flux	weber	Wb	$1\ \mathrm{Wb} = 1\ \mathrm{V.s}$
Flux density	tesla	T	$1\ \mathrm{T} = 1\ \mathrm{Wb/m^2}$
Frequency	hertz	Hz	$1\ \mathrm{Hz} = 1\ \mathrm{c/s}\ (\mathrm{s}^{-1})$
Electric conductance	siemens	S	$1\ \mathrm{S} = 1\ \mathrm{A/V}$
Pressure, stress	pascal	Pa	$1\ \mathrm{Pa} = 1\ \mathrm{N/m^2}$

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